

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 22 DEC 2005

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Applicant's or agent's file reference H/2BN67/AK/4	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/NL2005/000060	International filing date (day/month/year) 27.01.2005	Priority date (day/month/year) 27.01.2004	
International Patent Classification (IPC) or national classification and IPC G01N21/90			
Applicant HEINEKEN TECHNICAL SERVICES B.V. et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 5 sheets, as follows:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the opinion</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> Box No. VI Certain documents cited</li> <li><input type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>			
Date of submission of the demand  21.07.2005	Date of completion of this report  16.12.2005		
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Verdoodt, E Telephone No. +31 70 340-3577		



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## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language English, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

### Description, Pages

1-19 as originally filed

### Claims, Numbers

1-20 received on 21.07.2005 with letter of 21.07.2005

### Drawings, Sheets

1/5-5/5 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos. 21-23
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes:	Claims	1-18
	No:	Claims	19,20
Inventive step (IS)	Yes:	Claims	1-18
	No:	Claims	19,20
Industrial applicability (IA)	Yes:	Claims	1-20
	No:	Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Re Item V**

1. Reference is made to the following documents:  
D1: EP-A-0 872 724 (LOGICS & CONTROL S N C DI LOTT) 21 October 1998  
D2: EP-A-1 241 467 (HITACHI ENGINEERING CO., LTD) 18 September 2002  
D3: WO 03/042673 A (AKKERMANN JENSEN PETER ; ENDTZ FREDERIK NICO (NL); HEINEKEN TECH SERVIC) 22 May 2003  
D4: WO 97/04887 A (COORS BREWING CO) 13 February 1997  
D5: US-A-6 067 155 (RINGLIEN JAMES A) 23 May 2000

**CLAIMS 1 AND 5 (ART. 6 PCT)**

- 2.1 The application does not meet the requirements of Article 6 PCT, because independent claims 1 and 5 are not clear.
- 2.2 Claim 1 is not supported by the description as required by Article 6 PCT, as its scope is broader than justified by the description and drawings. The reasons therefor are the following:  
According to the description, the recording made by the second recording means is used to determine the orientation of the container.  
However, it is not clear from claim 1 that the orientation of the container is performed using the recording made by this second recording means. Therefore, any other way than described in the description for determining the orientation is possible, e.g. optically by using the first recording means or even mechanically using some kind of a reference marking on the bottle.  
Further it is not clear from claim 1 what is meant by the "making use of radiation comprising at least a second wavelength", as it is not clear how or if this radiation interacts with the container. This may even indicate some other kind of measurement involving x-ray or fluorescence analysis and not the use of visible light to allow the recording of an image using the second recording means as shown in the description.
- 2.3 Claim 5 is also not supported by the description as required by Article 6 PCT, as there are two means, an orientation determining means (line 17) and a second recording means (line 24) which are both used for determining the orientation of the container relative to the first recording means. According to the description (Page 11, lines 2-9), there is only one means, the processing unit (34), which serves to determine the orientation of the bottle on the basis of the second recording.

Obviously this processing unit (34) corresponds to the orientation determining means (in line 17) of claim 5.

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**CLAIM 1**

- 3.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):  
Method for detecting the possible presence of contamination of a container (Column 1, lines 8-12) with a decorative exterior (Column 6, lines 22-28), for liquids such as a drink such as beer, comprising steps for:
  - irradiating the container with radiation with at least a first wavelength by means of irradiating means (Column 4, lines 37-42),
  - determining the orientation of the container relative to first recording means (Column 6, lines 40-43),
  - recording by means of recording means a radiation sample of the radiation (Column 4, lines 27-29),
  - determining the possible presence of contamination by comparing the sample to a predetermined reference matching the orientation of the container relative to the recording means (Column 6, lines 38-39),
  - approving or rejecting the container (Column 6, lines 30-34).
- 3.2 The subject-matter of claim 1 therefore differs from this known D1 in that: the radiation has passed through at least a part of the container and use is made of radiation comprising at least a second wavelength and a recording is made by means of second recording means with a sensitivity to the second wavelength.
- 3.3 As it is not clear how or if the radiation, comprising at least a second wavelength, interacts with the container and of what a recording is made by means of second recording means (See also above, pgh 2.2), these steps are considered not to limit the subject-matter of claim 1.
- 3.4 The problem to be solved by the present invention may therefore be regarded as how

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to detect contamination at the inner side of the container.

- 3.5 The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:  
Document D2 (EP1241467) also uses radiation (2) which has passed through the container to be inspected, to detect the presence of contamination at the inner side of the container.
- 3.6 The skilled person would therefore regard it as a normal option to include this feature in the method described in document D1 in order to solve the problem posed.

**CLAIM 5**

- 4.1 Document D1 (EP0872724) is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):
- 4.2 Device *suitable* for detecting the possible presence of contamination of a container (Column 1, lines 8-12) with a decorative exterior (Column 6, lines 22-28), for liquids such as a drink such as beer or a soft drink, comprising;  
- first irradiating means (14) for irradiating the container with at least a first wavelength,  
- recording means (13) for recording a radiation sample of radiation during interaction of the radiation with at least a part of the container,  
- orientation determining means (PLC) for determining the orientation of the container relative to the recording means (Column 6, lines 40-43)  
- comparing means (PLC) for comparing the sample to a predetermined reference, matching the orientation of the container relative to the first recording means during the recording (Column 6, lines 41-43).
- 4.3 The subject-matter of claim 5 therefore differs from this known D1 in that: second irradiating means for emitting radiation of at least a second wavelength are provided, as well as second recording means.
- 4.4 As orientation determining means are already mentioned in the claim (See also above, pgh. 2.3), the second recording means are not considered to be suitable for performing this function.
- 4.5 The problem to be solved by the present invention may therefore be regarded as how to detect contamination at the inner side of the container.

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- 4.6 The solution proposed in claim 5 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:  
Document D2 (EP1241467) also uses second irradiating means (2) for emitting radiation of a second wavelength and second recording means (5), to detect the presence of contamination at the inner side of the container.
- 4.7 The skilled person would therefore regard it as a normal option to include this feature in the method described in document D1 in order to solve the problem posed.

**5 DEPENDENT CLAIMS 2-4 and 6-18**

- 5.1 Dependent claims 2-4 and 6-18 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT), see documents D1-D5 and the corresponding passages cited in the search report.

**6 CLAIM 19**

- 6.1 **Independent device claim 19:** As the recording means described in D1 is suitable for recording radiation *after it has passed through a wall part of the container*, claim 19 is considered to be not new.
- 6.2 Claim 20 is not clear (Art. 6 PCT) as it is not clear how the device as claimed in claim 19 can comprise measures according to any of the method claims 2-16.

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enclosure to letter dated 21-07-2005

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EPO - DG 1

21.07.2005

## NEW CLAIMS

(76)

1. Method for detecting the possible presence of contamination of a container with a decorative exterior, for instance provided with labelling and/or relief patterns, for liquids such as a drink such as beer, comprising steps for:
  - irradiating the container with radiation with at least a first wavelength by means of irradiating means,
  - determining the orientation of the container relative to first recording means,
    - making use of radiation comprising at least a second wavelength,
    - recording by means of recording means a radiation sample of the radiation after the radiation has passed through at least a part of the container, and
      - making a recording by means of second recording means with a sensitivity to the second wavelength,
      - determining the possible presence of contamination by comparing the sample to a predetermined reference matching the orientation of the container relative to the recording means, and
        - approving or rejecting the container.
2. Method as claimed in claim 1, wherein the containers are transported by means of a conveyor past the irradiating means and the recording means.
3. Method as claimed in claim 1 or 2, wherein the sample comprises an image recording and the reference comprises a reference image.

4. Method as claimed in claim 1, 2 or 3, wherein two recording means make a recording of the container at a predetermined angle relative to the container.

5 5. Device for detecting the possible presence of contamination of a container with a decorative exterior, for instance provided with a labelling and/or relief patterns, for liquids such as a drink such as beer or a soft drink, comprising:

- 10 - first irradiating means for irradiating the container with at least a first wavelength,
- second irradiating means for emitting radiation of at least a second wavelength,
- recording means for recording a radiation sample of .15 radiation during interaction of the radiation with at least a part of the container,
- orientation determining means for determining the orientation of the container relative to the first recording means,
- 20 - comparing means for comparing the sample to a predetermined reference matching the orientation of the container relative to the first recording means during the recording, and
- second recording means for determining by means of 25 a second recording the orientation of the container relative to the first recording means on the basis of the mutual positions and orientations of the first recording means, the second recording means and the container.

30 6. Device as claimed in claim 5, wherein the orientation determining means comprise recording means for making one or more the time of recording(s).

7. Device as claimed in claim 5 or 6, comprising filter means for making recordings in optically independent manner with the recording means on the basis of radiation of the first or of the second wavelength.

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8. Device as claimed in claim 5, 6 or 7, comprising polarizing means for polarizing radiation of the first and/or the second irradiating means.

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9. Device as claimed in any one of claims 5-8, wherein the first radiation sources are positioned behind the container relative to the container during making of the recording wherein the radiation irradiates the container.

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10. Device as claimed in any one of claims 5-9, comprising selecting means for selecting a part of the recording of a part of the container as assessment part, on the basis of which part the assessment is carried out.

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11. Device as claimed in any one of claims 5-10, wherein the recording means comprise at least one camera.

12. Device as claimed in any one of claims 7-11, wherein the filter means comprise an optical filter.

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13. Device as claimed in any one of claims 7-12, wherein the filter means comprise an electronic filter.

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14. Device as claimed in any one of claims 5-13, further comprising composing means for composing, on the basis of the first and/or second radiation sample and/or predetermined parameters, a robust reference image or a reference image with permissible deviation values, on the

basis of which image acceptable deviations in the decorative exterior within a series of containers can be taken into account during selection of containers.

5        15. Device as claimed in any one of claims 5-14, comprising processing means for producing, on the basis of the radiation sample or the assessment part, a flat representation thereof.

10        16. Device as claimed in any one of claims 5-15, wherein the first comparing means are embodied in order to compare the flat representation to the robust reference image.

15        17. Device as claimed in any one of claims 5-16, comprising second comparing means for comparing a recording of the second recording means to a second reference image or robust reference image for the purpose of detecting deviations on the decorative exterior.

20        18. Device as claimed in any one of claims 5-17, wherein the orientation determining means determine the orientation on the basis of the recording of the second recording means.

25        19. Device for detecting the possible presence of contamination of a container with a decorative exterior, for instance provided with a labelling and/or relief patterns, for liquids such as a drink such as beer, comprising:

30        - irradiating means for irradiating the container substantially from the top or the bottom with at least a first wavelength,

- recording means for recording a radiation sample of radiation after it has passed through at least one wall part of the container,

- comparing means for comparing the sample to a  
5 predetermined reference of the container relative to the first recording means during the recording.

20. Device as claimed in claim 19, comprising measures as claimed in one or more of the claims 2-16.